

CLAIMS

1. A security paper comprising at least two plies of
5 paper, in which, at least in one area, at least one
interlayer placed between the two plies of paper
includes at least one element giving the paper a high
double-fold resistance, as defined in the standard
10 NF ISO 5626, said element being in "diffuse" form
and/or in the form of particles, and the two plies and
said interlayer being intimately joined together.

2. The security paper as claimed in claim 1,
15 characterized in that said layer is placed by throwing
a composition containing said element.

3. The security paper as claimed in either of the
preceding claims, characterized in that the surface
20 between the two plies is entirely covered by said
layer.

4. The security paper as claimed in one of the
preceding claims, characterized in that the weight of
25 each ply is between 30 and 60 g/m².

5. The security paper as claimed in one of the
preceding claims, characterized in that the double-fold
resistance of the paper is greater than a value DF_{min} ,
where:

30
$$DF_{min} = 75\ 000E,$$

where E is the percentage dry weight of the element in
the paper.

6. The security paper as claimed in one of the
35 preceding claims, characterized in that said element is
chosen from mineral pigments, especially clays or
titanium dioxide, organic pigments, natural or
synthetic binders, especially starches or polyvinyl

alcohols, polyurethanes or styrene/butadiene copolymers, or natural or synthetic fibers, especially polyester or polyamide fibers, and mixtures thereof.

5 7. The security paper as claimed in one of the preceding claims, characterized in that at least one of the plies of paper includes a watermark.

8. The security paper as claimed in one of the
10 preceding claims, characterized in that the interlayer also includes at least one authentication element.

9. The security paper as claimed in the preceding claim 8, characterized in that the authentication
15 element can be detected optically.

10. The security paper as claimed in the preceding claim 9, characterized in that the authentication element is chosen from iridescent particles,
20 fluorescent particles, phosphorescent particles, colored particles, and flakes.

11. The security paper as claimed in one of claims 8 to 10, characterized in that the authentication element
25 reacts to certain stimulations giving a specific signal that can be detected using a suitable device.

12. The security paper as claimed in the preceding claim 11, characterized in that the authentication
30 element is chosen from substances that react to electromagnetic fields, in particular of the microwave or infrared or ultraviolet type.

13. The security paper as claimed in one of the
35 preceding claims 8 to 12, characterized in that the element providing the double-fold resistance is also an authentication element.

14. A process for manufacturing a security paper

having a high double-fold resistance as defined in the standard NF ISO 5626, as claimed in one of the preceding claims, which comprises the following steps:

- a first pulp composition is deposited on a first dewatering wire;
- the first pulp composition is drained so as to form a first fibrous mat;
- a second pulp composition is deposited on a second dewatering wire;
- the second pulp composition is drained so as to form a second fibrous mat;
- a liquid composition, containing a soluble element, or an element in emulsion or in the form of particles, giving said high double-fold resistance, is thrown onto at least one of said fibrous mats; and
- said first fibrous mat is joined to said second fibrous mat in order to form a unitary fibrous mat.

15. The process as claimed in the preceding claim 14, characterized in that said composition is thrown by spraying.

16. The process as claimed in either of claims 14 and 15, characterized in that at least one watermark is formed in the first and/or the second fibrous mat.

17. The process as claimed in one of claims 14 to 16, characterized in that a liquid composition containing at least one authentication element is thrown onto said first and/or said second fibrous mat.

18. The process as claimed in one of claims 14 to 17, characterized in that the first pulp composition or the second pulp composition is drained by means of a Fourdrinier wire, a double wire or a cylinder mold.

19. The process as claimed in one of claims 14 to 18, characterized in that it includes additional steps of pressing and drying the unitary fibrous mat.